Patent Claims

1. A method for producing a cylindrical body using a deposition assembly consisting of a plurality of series-arranged depositors to which a starting substance is fed via medium supply lines, and by means of which particles are deposited in layers on the outer surface of a carrier rotating about its longitudinal axis to form the cylindrical body in that the deposition assembly travels through a closed path of movement in a predetermined movement sequence, said path of movement comprising at least one deposition path extending along the longitudinal axis of the carrier, characterized in that the path of movement (6) comprises a first loop (7a, 8, 27a, 28a, 30a) and a second loop (7b, 8, 27b, 28b, 30b), the travel through the first loop (7a, 8, 27a, 28a, 30a) causing a right-hand twisting of the medium supply lines (9), and the travel through the second loop (7b, 8, 27b, 28b, 30b) causing a left-hand twisting of the medium supply lines (9).

2. The method according to claim 1, characterized in that neighboring depositors (4) of the deposition assembly (5) keep a desired distance ranging from 5 cm to 50 cm from one another, and that during travel through the deposition path (8; 28a; 28b, 31a, 31b, 58a, 58b, 58c, 58d) the first depositor of the deposition assembly (5) follows the last depositor at a distance within the range of the desired distance.

3. The method according to claim 1 or 2, characterized in that particles deposited by the depositors outside the deposition path (8; 28a; 28b, 31a, 31b, 58a, 58b, 58c, 58d) are collected by means of a collection device (39).

4. The method according to any one of claims 1 to 3, characterized in that the first loop (7a, 8, 27a, 28a) is traveled through in a predetermined direction of rotation, and the second loop (7b, 8, 27b, 28b) in an opposite direction of rotation.

5. The method according to claim 4, characterized in that the first loop (7a, 8, 27a, 28a) and the second loop (7b, 8, 27b, 28b) have a joint path of deposition (8).

6. The method according to claim 4, characterized in that the loops (27a, 28a, 27b, 28b) have a crossing point (21) in common and each has at least one path of deposition (28a, 28b).

7. The method according to any one of the preceding claims, characterized in that the depositors (4) are operated in a deposition mode with deposition of particles on the outer cylindrical surface of the carrier (1) during travel through the deposition path (8; 28a, 28b, 31a, 31b, 58a, 58b, 58c, 58d) and in an idle mode without deposition of particles.

8. The method according to claim 5 and claim 7, characterized in that not more than 50% of the depositors (4) of the deposition assembly (5) are simultaneously operated in the deposition mode.

9. The method according to any one of claims 1 to 3, characterized in that the path of movement comprises a single loop (30) which is traveled through by the deposition assembly (5) at least once as the first loop (30a) and at least once as the second loop (30b) in the same direction of rotation, the medium supply lines (9) or a medium collection line (33) branching into the medium supply lines (9) being displaced in the movement sequence such that during travel through the first loop (30a) a right-hand twisting is obtained and during travel through the second loop (30b) a left-hand twisting of the medium supply lines (9) or the medium collection line (33).

10. The method according to claim 9, characterized in that the medium supply lines (9) are bundled into a medium collection line (33) which branches at a branch point (37) into the medium supply lines (9) connected to the depositors (4).

11. The method according to any one of claims 9 or 10, characterized in that the displacement of the medium supply lines (9) or the displacement of the medium collection line (33) includes a guiding through the path of movement.

12. The method according to any one of claims 9 to 11, characterized in that the single loop (30) is completely occupied by the depositors (4) of the deposition assembly (5).

13. The method according to any one of the preceding claims 9 to 12, characterized in that the medium supply lines (9) or the medium collection line (33) are alternately displaced after having traveled once through the first loop (33a) and once through the second loop (33b), respectively.

14. The method according to any one of claims 9 to 13, characterized in that before each travel through the path of movement (6) the medium supply lines (9) have a pre-twisting with a twisting direction opposite to the twisting direction during subsequent travel through the path of movement (6).

15. The method according to any one of the preceding claims, characterized in that at least two carriers (1) rotating about their respective longitudinal axis (2) are provided along the path of movement (6), and that the path of movement (6) respectively comprises at least one deposition path (31a, 31b, 58a, 58b, 58c, 58d) extending along each carrier (1).

16. The method according to claim 15, characterized in that the at least two carriers (1) have longitudinal axes (2) extending in parallel with each other.

17. The method according to any one of claims 9 to 13 and according to claim 16, characterized in that each of the depositors (4) has assigned thereto a main deposition direction (23) which extends inclined by not more than 30 degrees relative to a plane formed by the carrier (1).

18. A device suited for carrying out the method according to any one of claims 1 to 17, comprising a deposition assembly consisting of a plurality of series-arranged depositors which are connected to medium supply lines for the supply of a starting substance, and which is movable over a closed path of movement including at least one path of deposition extending along a carrier which is rotatable about its longitudinal axis, characterized in that the path of movement (6) comprises a first loop (7a, 8, 27a, 28a, 30a) causing a right-hand twisting of the medium supply lines (9), and a second loop (7b, 8, 27b, 28b, 30b) causing a left-hand twisting of the medium supply lines (9).

19. The device according to claim 18, characterized in that neighboring depositors (4) of the deposition assembly (5) keep a desired distance ranging from 5 cm to 50 cm from one another, and that the length of the deposition assembly (5) and the length of the path of movement (6) are matched to one another such that during travel through the deposition path (8; 28a; 28b, 31a, 31b, 58a, 58b, 58c, 58d) the first depositor of the deposition assembly (5) follows the last depositor at a distance within the range of the desired distance.

20. The device according to claim 18 or 19, characterized in that the first loop (7a, 8, 27a, 28a) is traveled through in a predetermined direction of rotation, and the second loop (7b, 8, 27b, 28b) in an opposite direction of rotation.

21. The device according to claim 20, characterized in that the first loop (7a, 8) and the second loop (7b, 8) have a joint path of deposition (8).

22. The device according to claim 20, characterized in that the loops (27a, 28a, 27b, 28b) have a crossing point (21) in common and each has at least one path of deposition (28a, 28b).

23. The device according to any one of claims 20 to 22, characterized in that the first loop (7a, 8, 27a, 28a) and the second loop (7a, 8, 27b, 28b) have the same length.

24. The device according to claim 18 or 19, characterized in that the path of movement (6) comprises a closed single loop (30) which is traveled through by the burner assembly (5) at least once as the first loop (33a) and at least once as the second loop (33b) in the same direction of rotation, and that a means is provided for displacing the medium supply lines (9) or a medium collection line (33) branching into the medium supply lines (9), in such a manner that the medium supply lines (9) or the medium collection line (33) extend to the deposition burners (4) during a movement sequence, alternatingly arriving from one side of the closed single loop (30) and from the opposite side of the single loop (30).

25. The device according to claim 24, characterized in that the medium supply lines (9) or the medium collection line (33) can be displaced through the path of movement (6).

26. The device according to claim 24 or 25, characterized in that the medium supply lines (9) are bundled into a medium collection line (33) which branches at a branch point (37) into the medium supply lines (9) connected to the depositors (4).

27. The device according to any one of claims 24 to 26, characterized in that the single loop (30) is completely occupied by the depositors (4) of the deposition assembly (5).

28. The device according to any one of the preceding device claims, characterized in that at least two carriers (1) rotating about their respective longitudinal axis (2) are provided along the path of movement (6), and that the path of movement (6) respectively comprises at least one deposition path (31a, 31b, 58a, 58b, 58c, 58d) extending along each carrier (1).

29. The device according to claim 28, characterized in that the at least two carriers (1) comprise longitudinal axes (2) extending in parallel with one another.

30. The device according to claim 29, characterized in that the distance of the longitudinal axes (2) of carriers (1) which are opposite to one another along the path of movement (6) can be enlarged.

31. The device according to any one of the preceding device claims, characterized in that stationary additional heaters (39) are provided in the area of the body ends.

32. The device according to any one of the preceding device claims, characterized in that each of the depositors (4) has a central axis (23) and that each of the depositors (4) is rotatably supported about the central axis (23) in a mount connected to the path of movement (6).